REMARKS

Support for the amendments

The claim amendments and new claims are fully supported in the application as filed, and thus do not constitute new matter. The amendments to claim 4 and new claims 13-20 are supported, for example, at page 1, paragraph 1, and page 4 paragraphs 7-8.

Claim rejections under 35 U.S.C. § 102(b)

The Office Action rejected claims 4-6 under 35 USC § 102(b) as anticipated by US 6,132,711. The Applicant traverses this rejection, but nonetheless have canceled amended claims 4-6 to obviate the rejection.

In order to anticipate, a reference must teach each claim limitation, either explicitly or inherently. US 6,132,711 provides no teaching, either explicit or inherent, regarding administering allene oxide synthase to a subject at risk of ischemia reperfusion injury and suffering from one or more of the indications recited in claim 4, nor does it teach the limitations of the claims dependent on claim 4. Thus, the reference is not a proper anticipatory reference and the Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claim rejections under 35 U.S.C. § 103(a)

The Office Action rejected claims 1-6 and 8-12 under 35 USC § 102(b) as obvious by US 6,132,711. The Applicant traverses this rejection.

In order to establish a prima facie case of obviousness under 35 USC § 103(a), the Patent Office must demonstrate that those of skill in the art would find that the cited reference, alone or in combination with the general knowledge in the art, teaches or suggests all of the claim limitations, either explicitly or implicitly. A finding of obviousness also requires a reasonable expectation of success in the cited reference.

In the present case, the Patent Office's position appears to be that if a compound is known as an antioxidant, that it would be obvious to use the compound to treat or prevent ischemia. However, the Patent Office has provided no basis for this assertion. The Patent Office instead cites to a single paragraph in the background of the cited reference, which merely lists ***some*** antioxidants have been used to treat ischemia. In no

way can it be asserted that the cited reference would lead those of skill in the art to believe that it would be obvious that any antioxidant can be used to treat ischemia with a reasonable expectation of success. The cited reference also does not teach that allene oxide synthases are effective for treating ischemia, but instead simply teaches that allene oxide synthases are antioxidants; no experiments were performed *in vivo* or on isolated biological tissues, organs, or animals to test for beneficial effects against ischemia.

The Applicant are submitting exemplary references in an information disclosure statement filed herewith, in which known antioxidants were found to be ineffective in the following therapies in which antioxidant activity was expected to provide a therapeutic benefit:

(a) reducing myocardial infarct size (Antioxidant: MPG) (Venturini et al., J. Thromb. Thrombolysis 1998 May; 5(2):135-141; Miki et al., Basic Res. Cardiol. 1999, June; 94(3):180-187));

(b) reducing overall cardiovascular events or cancer (Antioxidant: Vitamins E, C, beta carotene) (Brown and Crowley, JAMA 293(11):1387 (2005))

(c) improving prognostic or functional indexes of heart failure (Antioxidant: vitamin E) (Keith et al., American Journal of Clinical Nutrition 73(2):219-224 (2001);

(d) treating acute ischemic stroke (Antioxidant: tirilazad mesylate) (Stroke, 2000, 32:2257-2265);

(e) improving ventricular function in patients who underwent angioplasty for acute myocardial infarction (Antioxidant: superoxide dismutase) (Flaherty et al., Circulation 1994; 89(5):1982-1991); and

(e) scavenging of nitric oxide during ischemia-reperfusion (Antioxidant: quercetin) (Shutenko et al., BioChem Pharmacol. 1999 Jan 15; 57(2):199-208).

These references demonstrate that one of skill in the art that would not find it obvious to use a compound to treat or prevent ischemia simply based on the fact that the compound is known to have antioxidant activity. Furthermore, many antioxidants operate via a non-enzymatic pathway (ie. vitamin E, carotene, vitamin C, quinones, etc.), whereas allene oxide synthase (AOS), like superoxide dismutase (SOD), is an enzymatic antioxidant. Those of skill in the art would not find it obvious that enzymatic and non-enzymatic antioxidants would necessarily provide the same benefit, since they operate by

different mechanisms. This further supports a finding that those of skill in the art would **not** find it obvious that if a compound is known as an antioxidant, that it would be obvious to use the compound to treat or prevent ischemia, much less that those of skill in the art would find it obvious to use allene oxide synthases to treat ischemia.

Based on the above, the Applicant respectfully requests reconsideration and withdrawal of the rejection.

CONCLUSIONS

Applicant respectfully contends that all conditions of patentability are met in the pending claims and therefore respectfully requests allowance.

If believed to be helpful to expedite prosecution of the above-referenced application, the Examiner is invited to contact the undersigned representative by telephone at (312) 913-2106.

Respectfully submitted,
McDonnell Boehnen Hulbert & Berghoff LLP

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By: _____
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Reg. No. 42,636